Kx ADSL Router

User’s Manual

Table of Content

Chapter 1
Introduction

1.1 An Overview of Kx ADSL Router

The Kortex Kx ADSL Router functions as an IEEE 802.3 Ethernet-based broadband IP sharing router. It provides one 10/100 Dual Speed Ethernet port for connection to a home or small office network and one 10Mb Ethernet port for a DSL Modem, Cable Modem, or other Broadband access device.

Kx ADSL Router provides the safety and security of ports blocking and a natural firewall as well as integrated NAT support that allows up to 32 users to share a single Internet Connection. Static address support, integrated client/server DHCP, and device name support will allow Kx ADSL Router to connect to nearly any Broadband provider, and at the same time simplify local area network settings.

The product has one local 10/100 Dual Speed Ethernet port and one 10Mb Ethernet global port. The local port can be connected directly to a single computer to provide added security from hackers and others on the Internet or it can be connected to an Ethernet or Fast Ethernet hub or switch to provide Internet Sharing and Firewall protection to a local area network. The global port can be connected to any Cable, DSL, or Broadband modem with an Ethernet port.

Kx ADSL Router provides two levels of security support. First, it masks local users' IP addresses from others on the Internet making it much more difficult for a hacker to target a machine on your network. Secondly it can block and redirect certain ports to limit the services that outside users can access. The user, to ensure that games and other Internet applications will run properly, can open specific ports.

Unlike proxy server or NAT software that requires the software server to remain visible on the Internet, no local computers are directly externally visible when using Kx ADSL Router. Also Kx ADSL Router, like broadband, is always on, removing the need to constantly boot a software server when access is desired from a client. No client software is required to connect to Kx ADSL Router so it will support any operating system that can connect to a network whether PC or Apple based. Telnet and Terminal setup are operating system independent. However, the Configuration Program of Kx ADSL Router must run on Microsoft Windows (95, 98, NT, 2000 or ME).

Integrated DHCP services allow up to 128 users to get their IP address automatically on boot up from this Kx ADSL Router. Client machines require no software, simply set them to accept a dynamically assigned IP address and reboot. Each time they are powered up Kx ADSL Router will recognize them and set their IP address to instantly connect them to the LAN.

For advanced users Virtual Service support allows Kx ADSL Router to provide limited visibility to local machines and their services as dictated by the user. An ISP provided IP address can be set to Kx ADSL Router and then specific services can be rerouted to specific computers on the local network. For instance, a dedicated web server can be connected to the Internet via Kx ADSL Router and then incoming requests for HTML that are received by the product can be rerouted to the original server, even though the server now has a different IP address. In this example, Kx ADSL Router is on the Internet and vulnerable to attacks, but the server is protected.

Virtual Service can also be used to re-task services to multiple servers. For instance, Kx ADSL Router can be set to allow separate FTP, Web, and Multiplayer game servers to share the same Internet-visible IP address while still protecting the servers and local users from hackers.

1.2 Package Contents

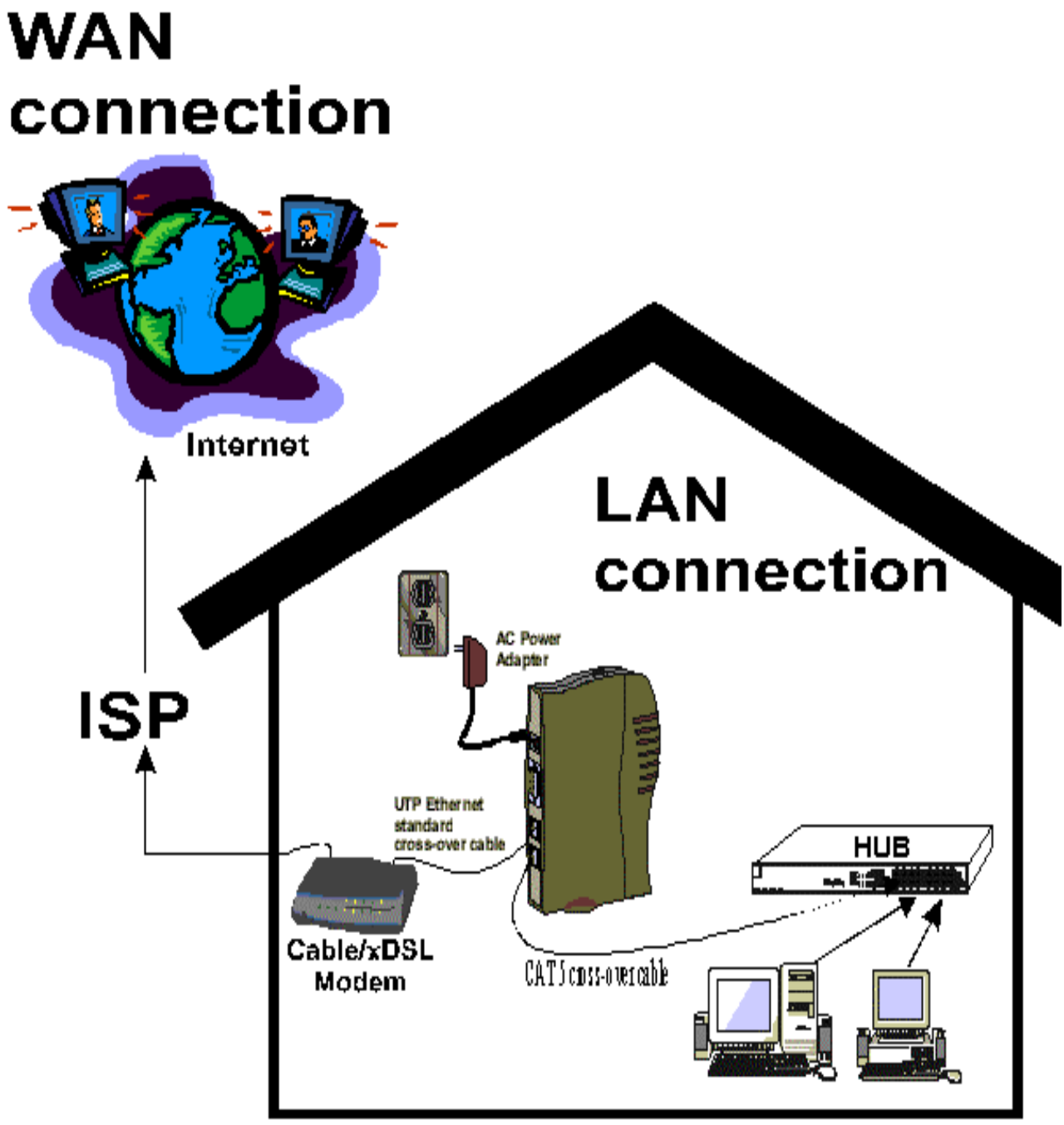
1. Kx ADSL Router
2. Installation CD
3. Quick Start Guide
4. CAT 5 cross-over cable
5. RS232 console cable
6. Power adapter

1.3 Kx ADSL Router Features

The Kx ADSL Router provides the following features

- All the PCs in a LAN can share a connection of an xDSL/Cable modem using one ISP account.
- Supports PPPoE.
- Supports VPN. (PPTP pass through).
- Explicit LED indication for Internet connection.
- Supports Internet applications such as Web, ICQ, FTP, Telnet, E-Mail, News, NetMeeting, PCAnyWhere, mIRC, CuSeeMe, AoE, etc.
- Natural firewall keeps hackers out.
- DHCP server allocates up to 128 client IP addresses.
- DHCP client gets global IP address automatically.
- 10/100Mbps dual speed auto-sensing for flexible network connectivity.
- Virtual server.
- Rich packet filters.
- Static routing.
- Supports Proxy-DNS.
- Easy to setup by Windows GUI program and Telnet through network, or HyperTerminal through Console.
- Flash memory for firmware upgrade

1.4 Kx ADSL Router Application



Chapter 2
Using Kx ADSL Router

2.1 Cautions for using Kx ADSL Router

Do not place Kx ADSL Router high humidity and high temperature.

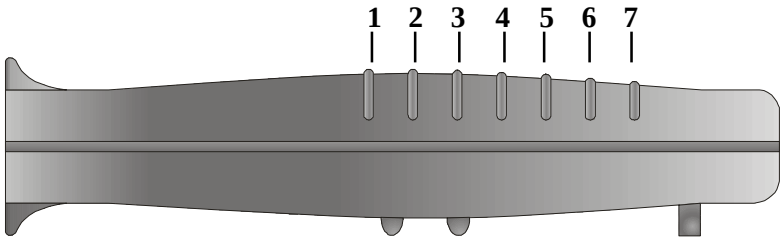
Do not use the same power source for Kx ADSL Router with other equipment.

Do not open or repair the case yourself. If the Kx ADSL Router is too hot, turn off the power immediately and have a qualified serviceman repair it.

Place the Kx ADSL Router on the stable surface.

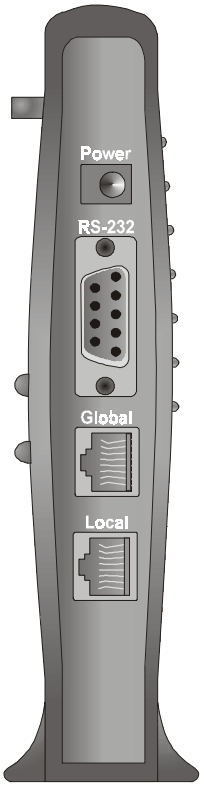
Only use the power adapter that comes with the package.

2.2 The front LEDs



LED		Meaning
1	**Power**	Lit when AC power is connected.
2	**LAN/ ACT**	Lit when connected to a LAN device. Flashes when sending/receiving data.
3	**LAN 100/10**	Lit when connected at 100 Mbps. Off when connected at 10 Mbps.
4	**LAN full/half**	Lit indicates full-duplex mode. Off indicates half-duplex mode.
5	**WAN/ ACT**	Lit when connected to an xDSL/cable modem. Flashes when sending/receiving data.
6	**Internet**	Lit when the Internet connection is established.
7	**Error**	Lit when a component malfunction is detected.

2.3 The rear ports



Power (jack)	Connect the supplied power adapter to this jack
RS-232 (port)	Connect the supplied RS-232 cable to this port when connecting to a PC's RS-232 port (9-pin serial port).
Global (RJ-45 connector)	Connect an UTP Ethernet cable or crossover cable to this port when connecting to the Internet or making other WAN connections.
Local (RJ-45 connector)	Connect an cross-over Ethernet cable to this port when connecting to a LAN such as an office or home network.

2.4 Cabling

The most common problem associated with Ethernet is bad cabling. Make sure that all connected devices are turned on. On the top of Kx ADSL Router is a bank of LEDs, as a first check verifies that the LAN Link and WAN Link LEDs are lit and green. If they are not, verify that you are using the proper cables.

Kx ADSL Router's ports are wired just like a Network Adapter's port. From the product directly to a PC, the cable should be an Ethernet crossover cable. From the product to a hub or switch, the cable should be an Ethernet straight through cable to a normal hub/switch port, or an Ethernet crossover cable to an uplink port. For the product to a cable/DSL modem, it is most common to use a crossover, and it is recommended that you use the same cable as supplied by your modem maker.

Chapter 3
Configuration

Kx ADSL Router can be configured by a GUI program, Terminal program, or Telnet program. The GUI program must be started under Windows 95, 98, NT, 2000 or ME; however, the Terminal or Telnet program can be started in any OS, including UNIX, Linux, Mac OS, Windows 95/98/NT/2000/Me, etc.

3.1 Factory Default settings

3.1.1 Password

The default setting for password has been left blank in the factory. Press **Enter** then you are logged in for the first time. It is recommended that you set a password for security and management purpose.

*If you ever forget the password to log in, you can only reset to the factory setting. Refer to the **Factory Reset** section in **Chapter 6 Troubleshooting** for details.*

3.1.2 Local and Global Port Addresses

The LAN parameters of Kx ADSL Router are pre-set in the factory. The default values are shown below.

Local Port		Global Port
IP address	192.168.1.254	DHCP client function is *enabled* to automatically get the Global port configuration from ISP.
Subnet Mask	255.255.255.0	
DHCP server function	Enabled	
IP addresses for distribution to PCs	128 IP addresses continuing from 192.168.1.1through 192.168.1.128	

3.2 Information from ISP

You can skip this section if your ISP (Internet Service Provider) can *dynamically* provide the IP addresses. Otherwise, you have to gather the information as illustrated in the following table.

	IP address
ISP-assigning IP address	Ex. 203.66.81.201
Subnet mask	Ex. 255.255.255.0
Gateway	Ex. 203.66.81.254
DNS server #1	Ex. 203.66.81.251
DNS server #2	Ex. 203.66.81.252

3.3 Configuring with GUI Program

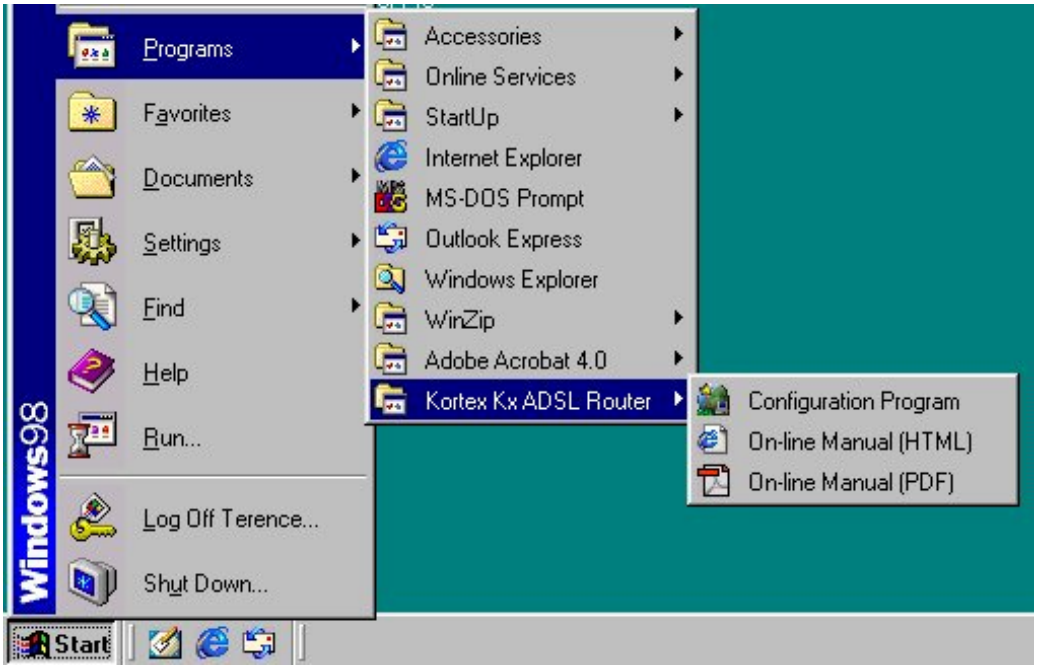
3.3.1 Installing and running the GUI program

Your system must meet the following requirements to run the GUI program.

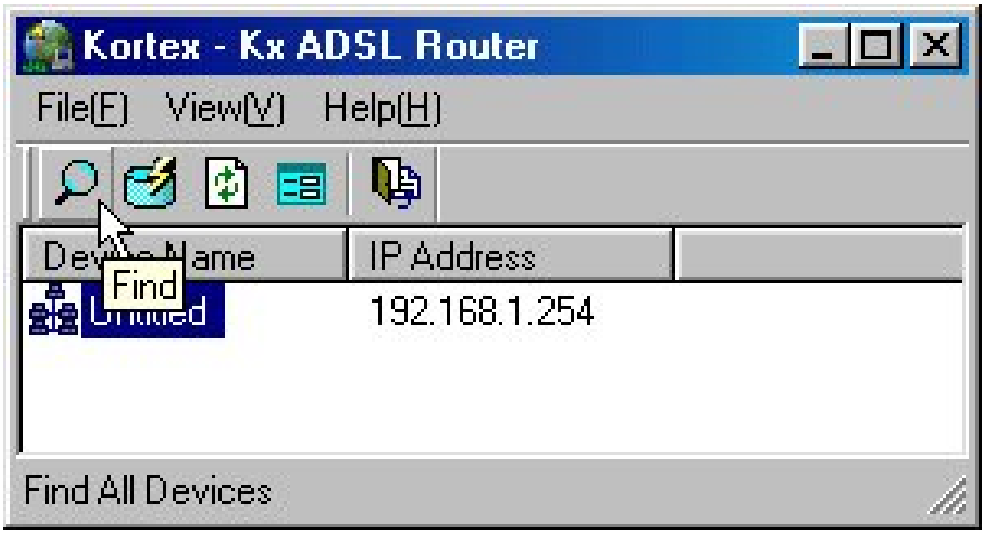
1. Windows 95, 98, NT, 2000 or ME.
2. IE4.01 or above well installed.

To install the GUI program, you can just insert the Installation CD into the CD-ROM drive. The installation program will start automatically. Follow the instructions on the screen to complete the installation.

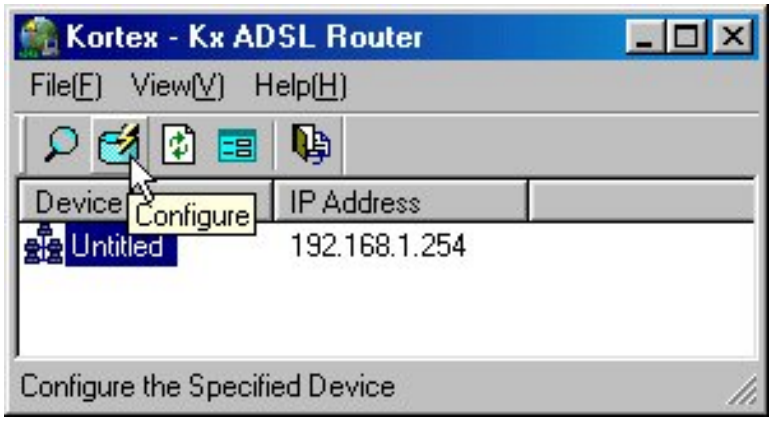
When the setup program is installed, go to **Start → Programs → Kortex Kx ADSL Router → Configuration Program.**



When the opening screen appears, click **Find** to list all the recognized IP routers.

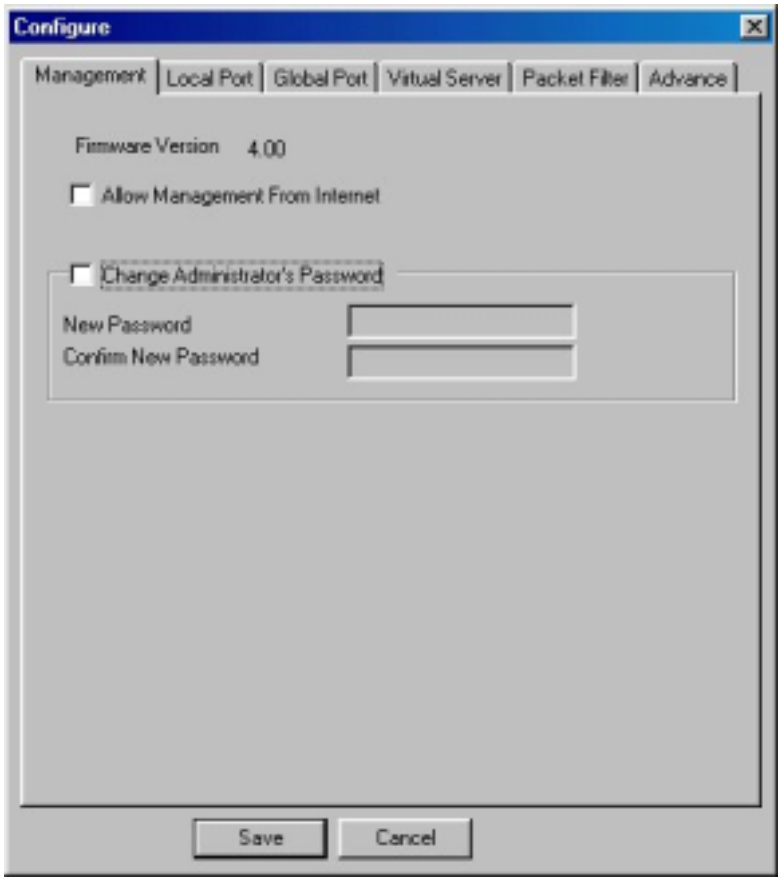


Select the IP router that you want to configure and click **Configure**.



The configuration dialog boxes are categorized into several tabs as described in the following sections.

3.3.2 Management



Firmware Version: Read-only.

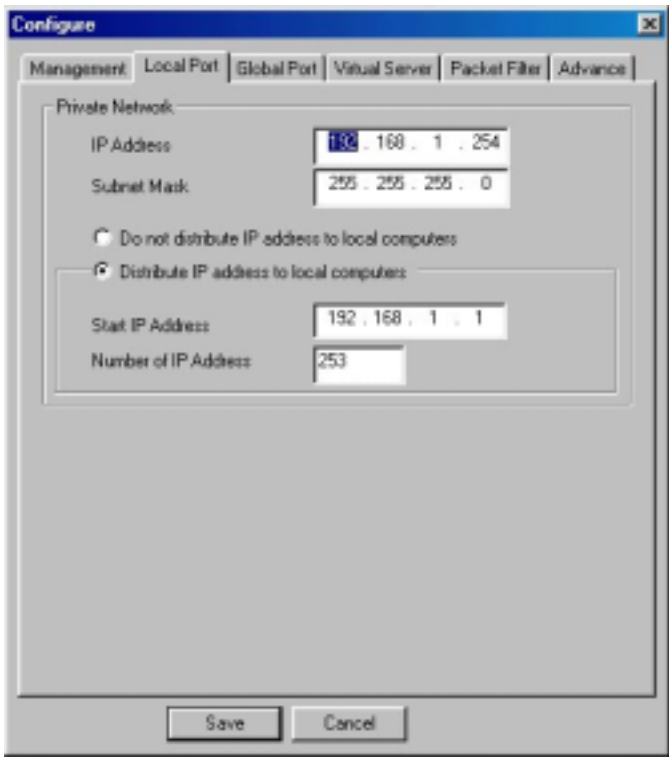
Allow Management from Internet: Check if you want to manage your Kx ADSL Router from Internet.

Change Administrator Password: In this dialog box, you can also change administrator's password.

Maximum: **6** alphanumeric characters long. Case sensitive.

3.3.3 Local Port

This screen contains settings for LAN interface attached to the local port.



IP Address

Default: 192.168.1.254

Subnet Mask

Default: 255.255.255.0

⊙Do not distribute IP address to local computers[1]

Checking this radio button to disable this Kx ADSL Router to distribute IP Addresses.

⊙Distribute IP addresses to local computers

Checking this radio button to enable this Kx ADSL Router to distribute IP Addresses. And the following field will be activated for you to enter the starting IP Address:

Start IP Address

The starting address of this local IP network address pool. The pool is a piece of continous IP address segment.

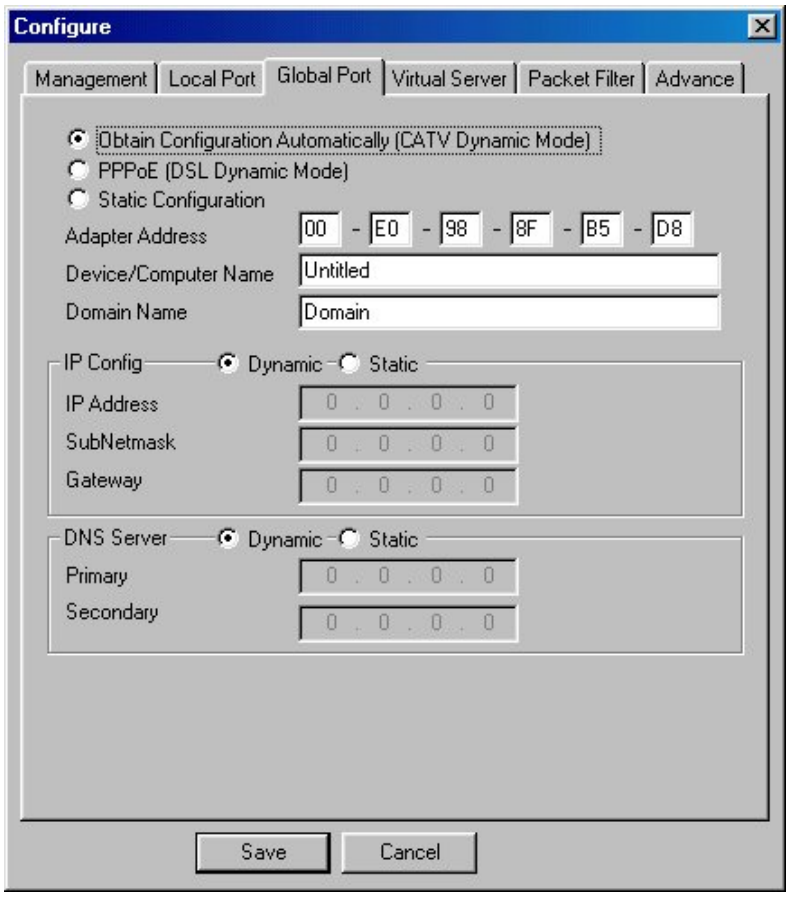
Number of IP Address

Default: **253**

[1] If you check this selection, remember you have to specify a static IP address for each of your local computers.

3.3.4 Global Port

This screen contains settings for the Global interface toward Internet.



Obtain global port configuration automatically: If it is checked, the Global port IP address is obtained through DHCP protocol on device boots up. The address might be varied each time.

PPPoE: If it is checked, the Kx ADSL Router is using PPPoE function.

Adapter Address: It is necessary for some ISP to identify this Kx ADSL Router by its MAC address.

IP Config: If you choose **Dynamic**, the Global port IP address is obtained through DHCP protocol on device boots up. If you choose **Static,** check this item if your ISP provides you a fixed IP address.

IP address: Provided by your ISP.

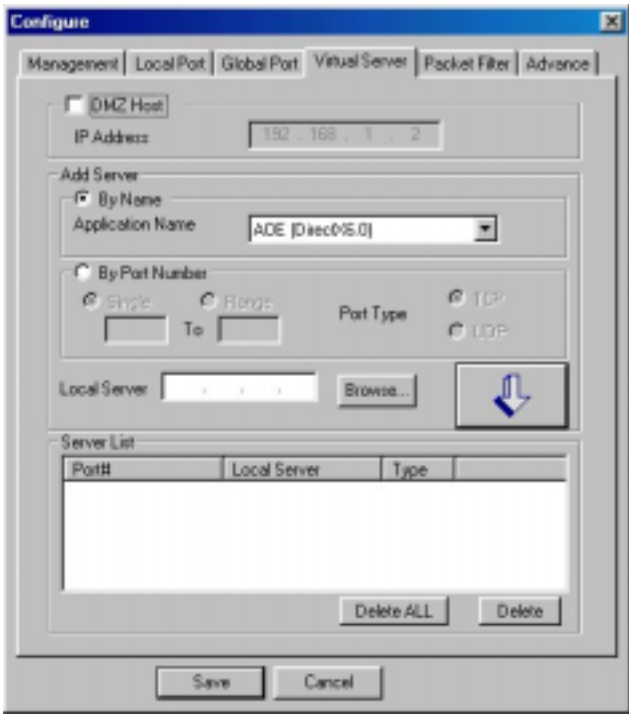
SubNetmask[2]: Provided by our ISP.

DNS server: These values will be automatically provided once you click "**Obtain global port configuration automatically**". You can change the values if necessary.

[2] If you checked PPPoE in **Management** tab (see the **Management** section), "**Obtain global port configuration automatically**" and **"Set static global port configuration"** are grayed to deny change.

3.3.5 Virtual Server

Being a natural Internet firewall, this Kx ADSL Router protects your network from being accessed by outside users. When it needs to allow outside users to access internal servers, e.g. web server, ftp server, e-mail server or news server, this product can act as a virtual server to public services. You can set up a local server and specific port number that stand for the service, e.g. web (80), FTP (21), Telnet (23). When Kx ADSL Router receives incoming access request to specified port, it will be forwarded to the corresponding internal server.



DMZ Host: For selecting this item, you should type the IP address that your ISP provides.

Add Server: You can select **By Name** or **By Port Number.**

By Name: You can choose the sever name to add this function**.**

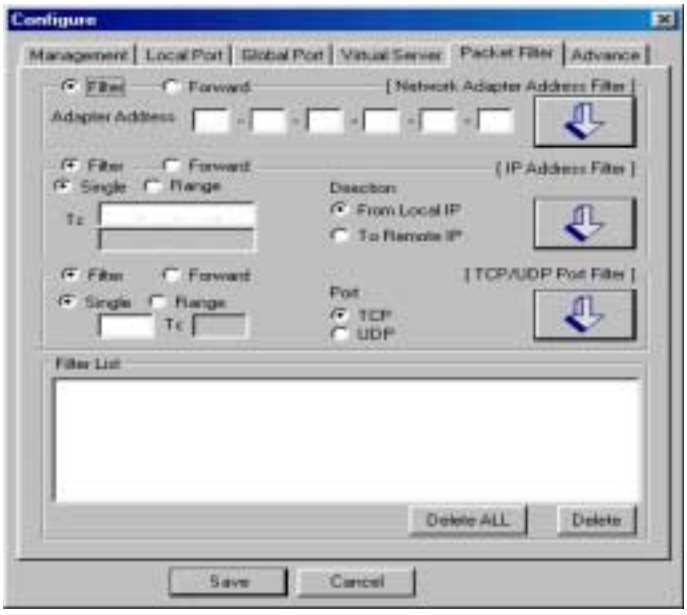
By Port Number: For selecting between a specified port and a range of ports which you want the Internet users to be able to access. The valid port number ranges from 0 to 65535.

Browse: If DHCP function is enabled, then the distributed IP addresses will be listed for you to browse and select.

Port Type: TCP or UDP.

3.3.6 Packet Filters

In the Packet Filters screen, you can block specified internal users from Internet access, or you can disable specific Internet services. You can set up the filters through the following three filter types. Each filter type can be set to **filter (drop)** or **forward** action**.** There are six sets of filter totally. The relationship among all filters is **"OR"** operation, which means as long as one of the conditions is satisfied, the specified action will be taken.



Network Adapter Address Filter:

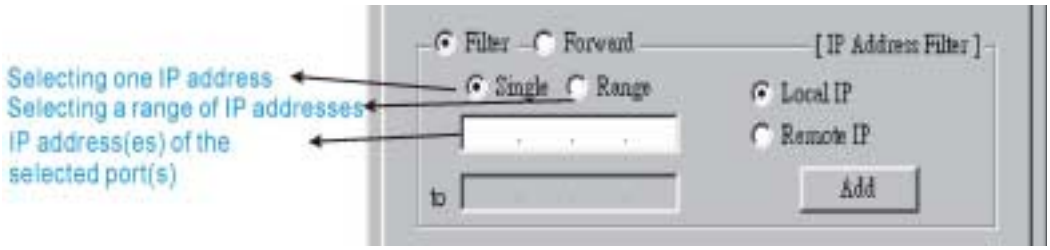
Scope for network adapter addresses of **local** computers. No address range setting is allowed.

IP Address Filter:

Allows IP address range setting.

Local IP: scope for IP address of **local** computers.

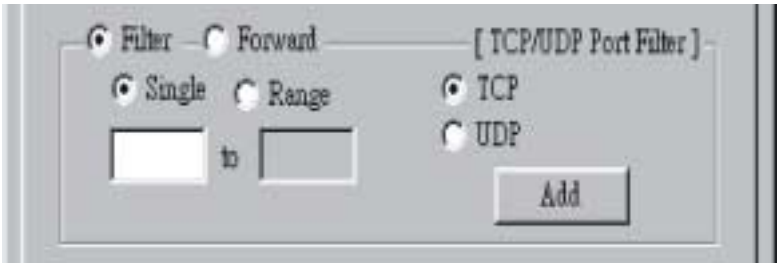
Remote IP: scope for IP address of **remote** servers.



TCP/UDP Port Filter

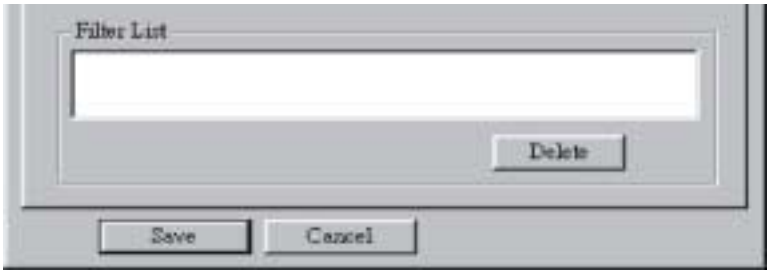
TCP port: scope for the connection-based application service on **remote** server using the port number.

UDP port: scope for the connectionless application service on **remote** server using the port number.



When you finished the settings, the selected filters will be shown on the **Filter List**. If there is any you don't want to filter, Click **Delete** to do so.

Click **Save** to save the settings.



3.4 Configuring with Terminal or Telnet Program

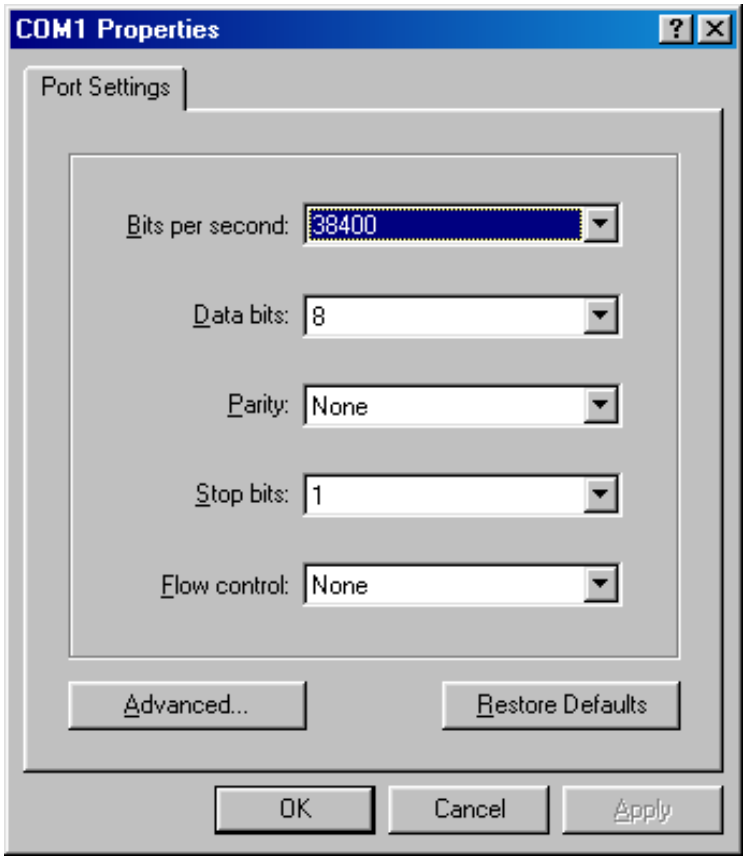
You can use terminal emulation on your PC/workstation for the initial and future configuration of your Kx ADSL Router. Windows HyperTerminal or other terminal emulation applications can be used.

If you prefer, a telnet session can be opened directly. Telnet provides the same type of terminal emulation. For security purposes, Kx ADSL Router uses port **333** for telnet. All of the following configuration menus are identical in a telnet session, with the exception that any saved changes that result in the product rebooting will require you to open a new telnet session to reestablish a connection with the Kx ADSL Router.

3.4.1 How to start HyperTerminal

1. Connect an RS-232 cable from one Serial COM port on your PC to your Kx ADSL Router's Serial Console port.
2. Go to **Start → Program → Accessories → Communications → HyperTerminal**.
3. When the Hyper Terminal window appears, double-click **Hypertrm**.
4. Name the new connection appropriately.
5. In the **Connect To** dialog box, select the COM port that connects to your Kx ADSL Router.

6. Press **OK**, you should see the following screen.

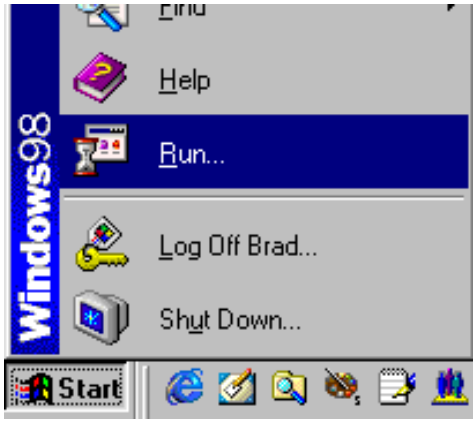


7. set the **Bits per second** rate at **38400**, and **Flow control** at **None**. Click **OK** to complete the setting.

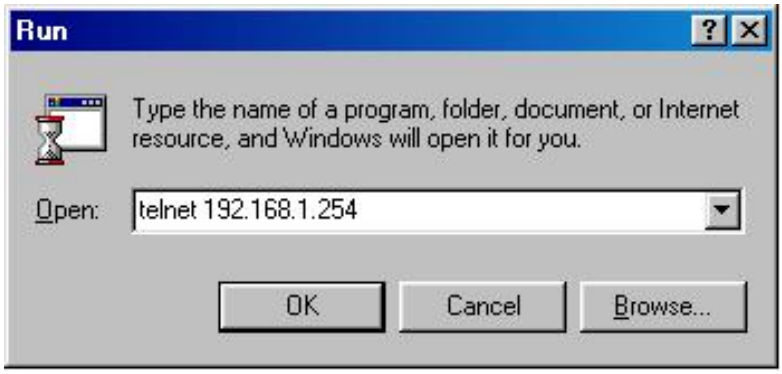
8. Power up the Kx ADSL Router.

3.4.2 How to start Telnet

1. Go to **Start → Run**.



2. Type "**telnet 192.168.1.254**" and press **Enter**. If the local port of Kx ADSL Router is set to something other than the factory default ("192.168.1.254"), enter that one.



3.4.3 Starting Configured

Once the connection is made successfully either via HyperTerminal or Telnet, the following information will appear:

```
Dual Ethernet IP Share for Cable/xDSL Modem, version 4.00

Administrator password:

No password is required the first time you log in. Press <ENTER> to enter
Configure mode. The screen prompts you for the following command.

command>

Type? for help batch command.
```

Refer to the APPENDIX A "**Terminal Commands**" for a detailed description of terminal commands.

3.5 Changing Password

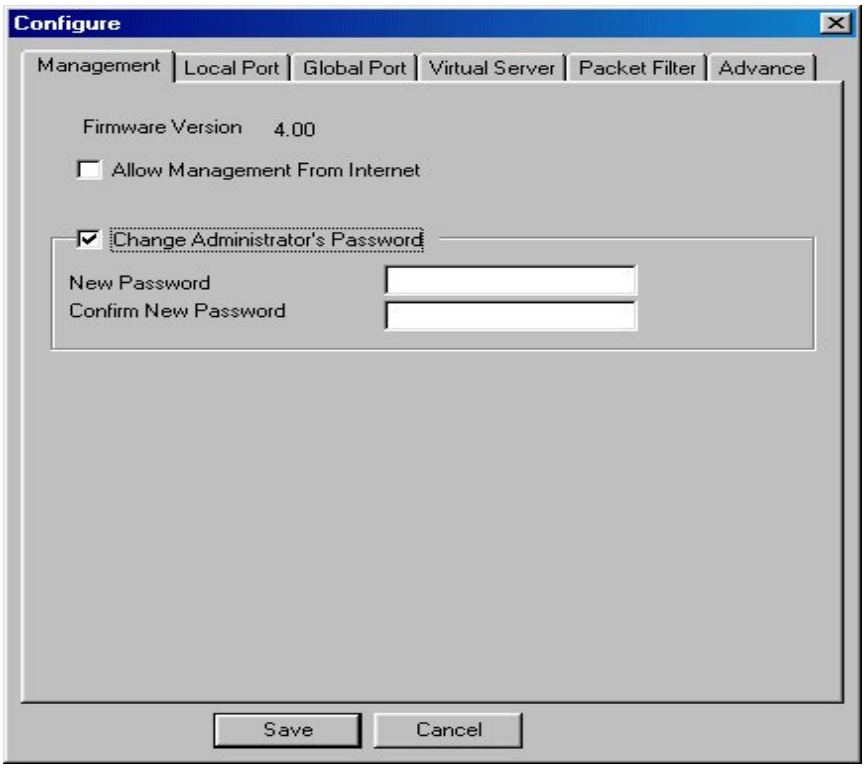
Kx ADSL Router has no password for standard user access in default. It is recommended that you change the default passwords to ensure that someone cannot adjust your settings without your knowledge at the first time you setup this device.

For GUI

1. Start this Kx ADSL Router by running **setup.exe** as described in the chapter titled "**Configuration**".

2. Check "Change Administrator's Password.

3. Enter the desired new Password, and confirm it in the following field.



For Terminal

Refer to the previous section titled "**Configuration in Terminal Program**" for terminal emulation. You should see the following prompts, do as instructed in italics. Please note that passwords are case sensitive, so be sure that you remember whether a letter is in upper or lower case and make sure that your Caps Lock is off:

```
command>passwd
Please type old password : **** Type old password and press <Enter>
type new password (0 to 6 characters) : ****** Type the new password and press <Enter>
re-type new password (0 to 6 characters) : ****** Re-type the new password and press <Enter>
```

Forget your password?

Refer to the ***Factory Reset*** section in ***Chapter 6 Troubleshooting*** for details.

Chapter 4
PPP Over ETHERNET (PPPoE)

4.1 What is PPPoE

PPPoE is known as a dial-up DSL service. It is designed to integrate the broadband services into the current widely deployed, easy-to-use, low-cost dial access networking infrastructure. Thus, customer can get greater access speed without changing the operation concept.

PPPoE functions supported by Kx ADSL Router

Single Account Sharing:

One single account can be shared for multiple users.

Automatically connected to the Internet:

Just launch any Internet program intuitively, the unit will login and get on-line automatically.

Automatically disconnected from the Internet:

Kx ADSL Router will get-off line automatically when idle.

4.2 How can I know I am using PPPoE?

PPPoE client software provided by our ISP should be installed onto your computer first. Run the program to connect/disconnect to the Internet each time before/after you surf.

A user account is also required each time you go for the Internet access.

4.3 Checking PPPoE Connections

4.3.1 For GUI Setup program

1. Go to **Start** → Programs → **IP Share Setup**.

2. When the **configure** screen appears, select the Global Port tab. Refer to the previous section titled "**Configuration in GUI**".
3. Check if the value of Global port IP address is **0.0.0.0**, if yes, it means that the PPPoE connection failed. Or if the value is **non-zero**, then the PPPoE connection is good.

4.3.2 Checking PPPoE status through terminal

1. Start Telnet or HyperTerminal as described in the previous section titled "**Configuration in Terminal Program**" for terminal emulation.

2. At the command prompt, type **show** command.

   ```
   command>show
   ```

3. If the string of IP address of global port is 0.0.0.0, it means you are disconnected, or if it is anything other than 0.0.0.0 (non-zero), it means the connection is good.

Once the PPPoE setup is completed, stop running any PPPoE client software.

Whenever a user is to be added, just install a network adapter to the computer he is using and then the Internet access is shared.

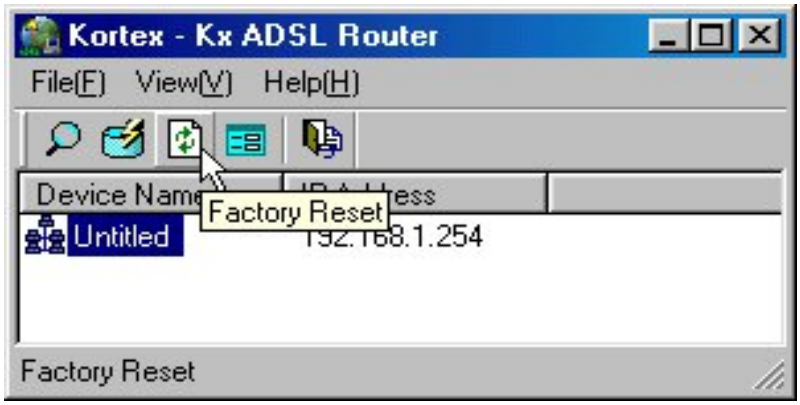
Chapter 5
Troubleshooting

If the Kx ADSL Router is not functioning properly, you can refer first to this chapter for simple troubleshooting before contacting your service provider. This could save your time and effort but if the symptoms persist, then consult your service provider.

Factory Reset

If for any reason, e.g. password being forgotten, you have to reset this Kx ADSL Router to factory default settings. Be careful that the current settings will be lost and the settings are reset.

The factory default values is detailed in the section ***3.1 Factory Default Settings***.



“I can't find Kx ADSL Router using the GUI Setup Software”

For the GUI Setup Software to find Kx ADSL Router, it has to be accessed from a client. This means that the computer you are trying to use to run the software must be setup as in Step 6. Additionally the computer should have been restarted to ensure that it is receiving its IP address from the device.

To verify that your computer is setup properly, use the "winipcfg" utility in Windows. To run this go to Start-->Run... and type "winipcfg" in the Run box. Press the "More Info" button on the bottom right and make sure your network adapter that is attached to Kx ADSL Router is selected in the Ethernet Adapter Information box.

Look at the box labeled DHCP Server; this should be Kx ADSL Router 's IP address (192.168.0.1 as default). If it is not, or it is blank or reads 255.255.255.255 then you may have a cabling problem (see above), or you may have another DHCP server on your network. In either case, please follow the installation guide again, and ONLY connect the client, Kx ADSL Router and your modem. If you are on a network, it is recommended that you contact your ISP manager for further assistance with DHCP settings. Placing an IP Share device configured to pass out IP addresses on a LAN with an existing DHCP server may cause problems throughout a network as the product issues new IP addresses to computers that log on to the network. It is recommended you disable other DHCP servers on the network if you plan to use the product.

IP address conflict

When you see the message box prompted for IP address conflict, it could be caused by rebooting the Kx ADSL Router, or some new comer occupies the address. Please run the "**winipcfg**" utility to release all current configuration first, and then renew all. Kx ADSL Router will assign a new IP address to your computer.

My Internet application won't work

To protect your computer from Hackers, Kx ADSL Router uses port blocking. A port is like a door into your computer. Each service on the Internet has an associated port. The product protects your computer by closing certain ports off so that malicious programs can't access your computer. Sometimes, however, you are using an application on purpose that uses one of these blocked ports. In this case you will have to manually open the port to allow the application to work properly.

Some applications that may be affected are
*Some **Email Programs***
*Some **Multi-Player Games***
*Some **Internet Phone/Video Conferencing Applications***

Also, there are some applications that require reverse connection over the Internet. In other words, when you are connected to these applications, you have to open your ports for forth and back connection.

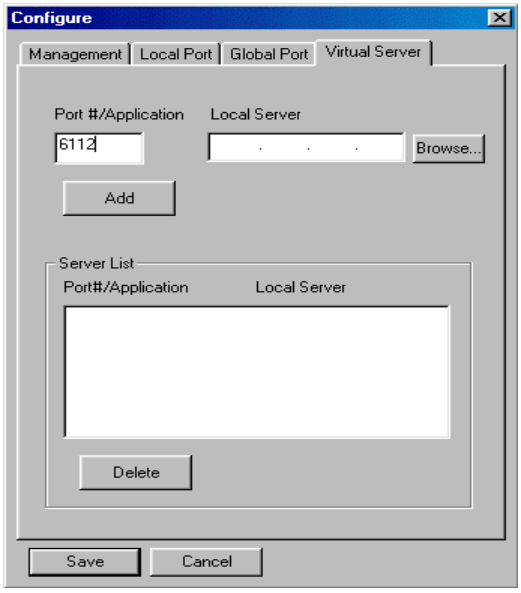
The first thing you will need to do is determining what port or ports the application uses. Typically the fastest way to find this information is to go to the software maker's web site. Go to their support section and look for information related to NAT, Proxy Server, or Firewall. This information will typically list 1 to 3 ports that need to be opened for proper operation of the software. If you can't find the necessary information, call the software maker and ask what ports need to be opened for the software to work through a firewall.

Once you have the necessary port information, it is a simple matter to actually open the ports on the Kx ADSL Router.

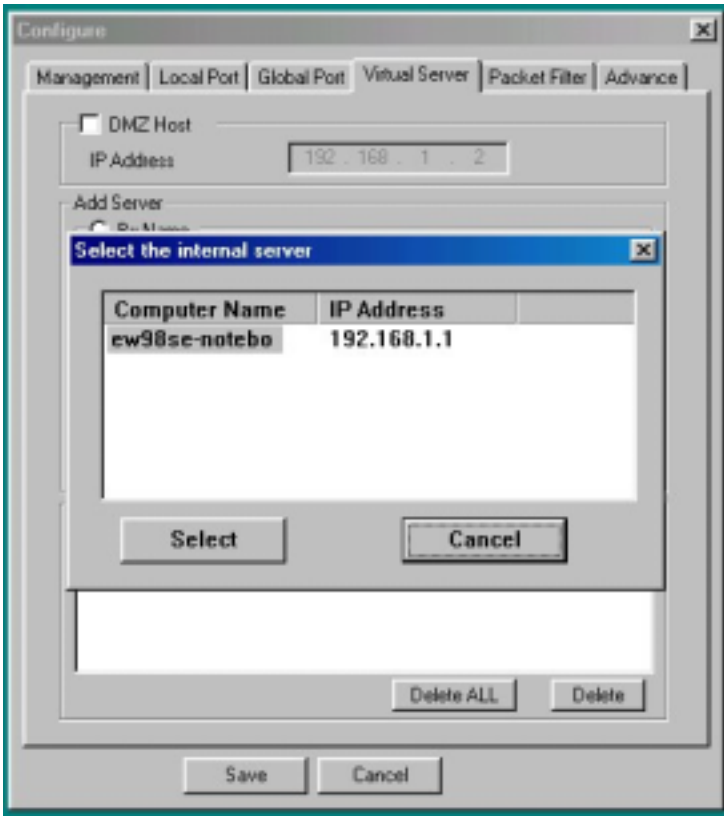
A. Launch the Windows GUI Setup Software and press "**Find**". Once the GUI Setup Software finds Kx ADSL Router, press "**Configure**":

B. Choose the "Virtual Server" tab.

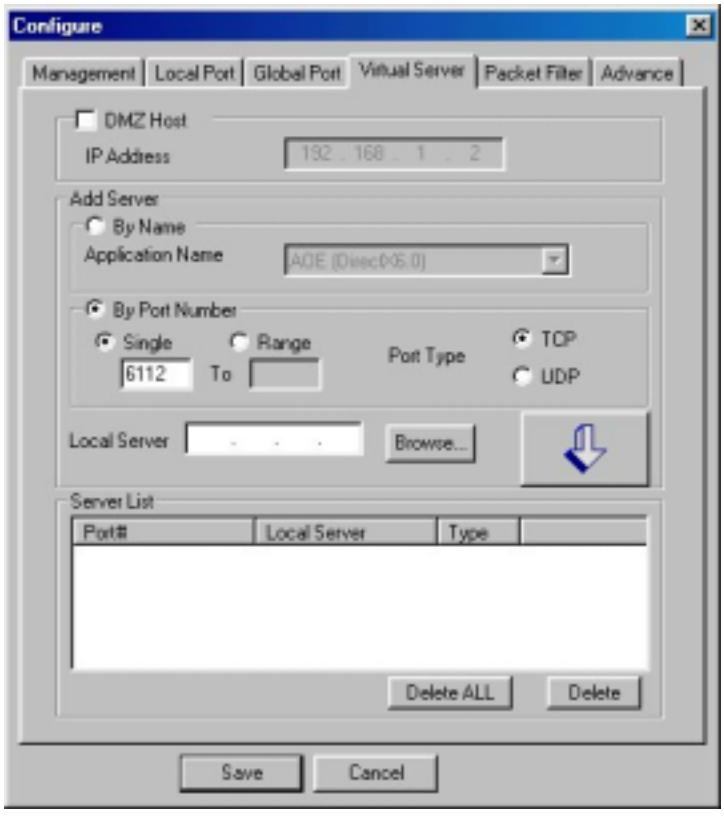
C. Enter one of the port numbers that your application requires and press "Browse".



D. Choose the computer that is using the application and press "Select":



E. Press Add. Repeat this process for each individual port you need to open.



F. Press Save. Your application should now work. It may be necessary to restart your application or your computer for the application to recognize the change.

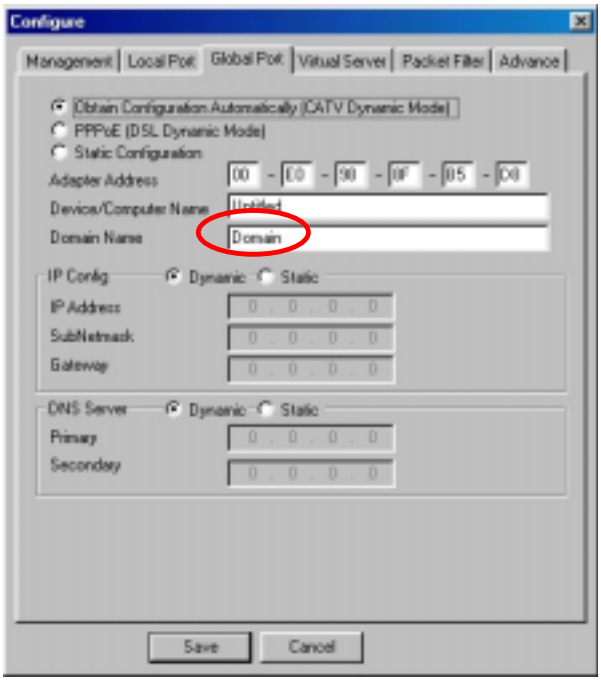
Can not access the Internet

For Cable users, identify your Computer name with the Device / Computer Name.

1. Go to **Start → Control Panel → Network**, and select ***Identification*** tab. Copy the Computer name as shown in the lower left figure.

2. Run setup.exe. Go to the ***Global Port*** tab.

3. Paste the name on to the field "**Device / Computer Name**" as shown in the lower right figure.



Check the physical connectivity of local network.

Check if both the LEDs of Local and Global on Kx ADSL Router front panel are green. If yes, go to next step. Otherwise, make sure you are using the proper cables and the cables are well plugged into the jack.

Check the physical connectivity of broadband device.

Examine the LED of LAN port and the LED of the broadband signal input on the Cable Modem/xDSL Modem. If the LAN LED is off, make sure you are using the proper cables and the cables are well plugged into the jack. If the LED of broadband signal is off, contact with your ISP.

Check the status of this Kx ADSL Router.

If your ISP assigned you an IP address, please skip this step.

Otherwise, release and renew the current IP address of the Global port. Then type 'Show' command to see if the address is still under claiming or claimed. Go to next step if it shows "Claimed".

Reboot Kx ADSL Router and check it again. If you get the same result, please contact with your ISP.

Check the logical connectivity from your computer to the Internet.

Refer to the section of "PING.EXE" in the chapter "TCP/IP Network diagnosis". Follow the steps to find the problem caused by.

Diagnosis

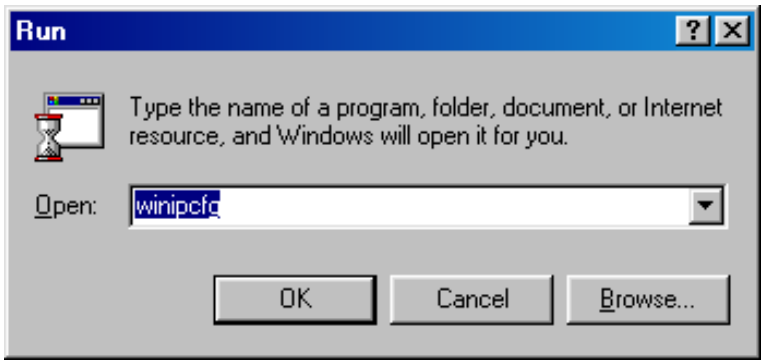
TCP/IP Network Diagnosis

Execute *WINIPCFG.EXE* or *PING.EXE* for TCP/IP network diagnosis.

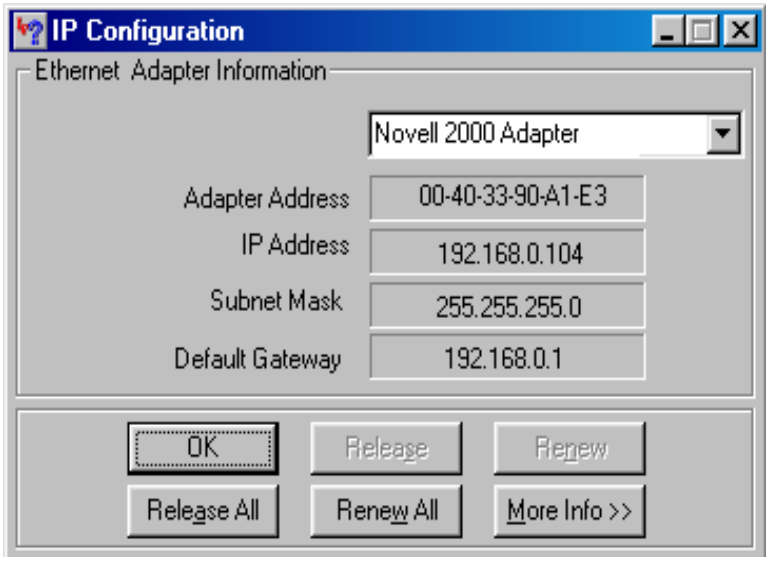
WINIPCFG

The WINIPCFG program is used to gather information about the TCP/IP connections that are active on your system. It cannot be used to dynamically adjust TCP/IP connections. You can also renew leases (if allowed by the network), and get the current IP address assignments through this program.

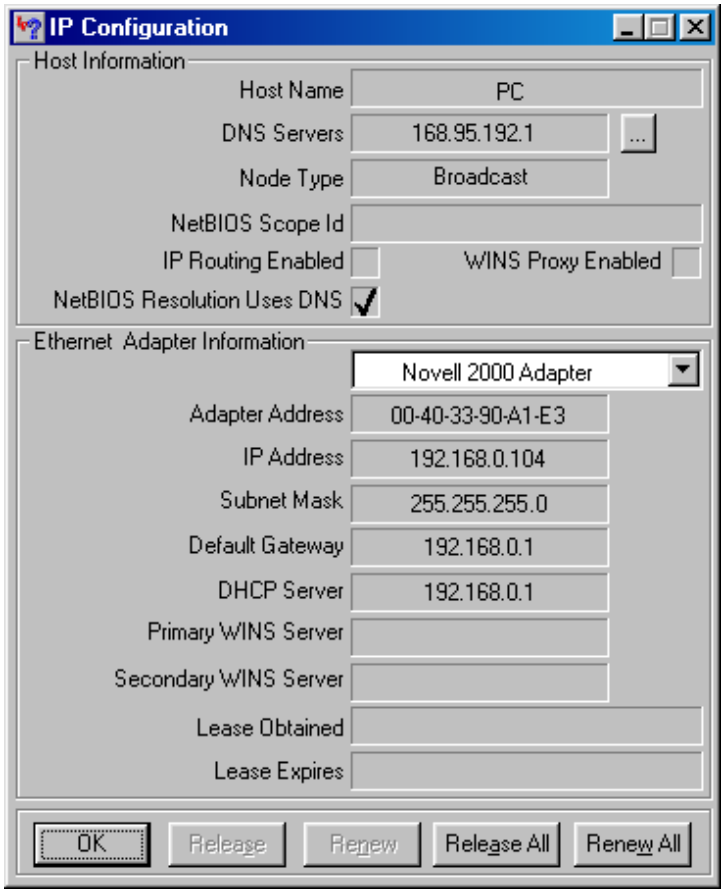
Go to **Start**. Click **Run**. Enter **`WINIPCFG`**.



The following figure displays the adapter address and current TCP/IP address.



Click the **More Info** button to get detailed configuration information.



The computer name and DNS server the computer is configured to call when it is looking for a named resource are on top. The default gateway is the server to which the client connects to the Internet. The DHCP Server identifies the network server that assigns IP addresses to computers logging onto the network.

If Kx ADSL Router is properly set up and working, the following should be apparent from this screen:

1) The Client should have an address in the range set in Kx ADSL Router for local clients

2) The DHCP and Default Gateway should list Kx ADSL Router's local port address

3) The DNS servers should match Kx ADSL Router's set servers

PING.EXE

Ping is used to verify that a computer is active and available. Users can specify the destination domain name or just the IP address.

For example, to find the server 168.95.192.1, type the following command at the MS-DOS prompt:

```
C:\>PING 168.95.192.1.
```

PING can be executed in Windows as shown below:

1. Go to the **Start** menu.
2. Click **Run**.
3. Type ping `168.95.192.1.` Click **OK**.

4. The server is online if the following message appears.
5. Reply from 192.168.0.1: bytes=32 time=3ms TTL=100
6. The destination device is not reachable if the following message appears.
7. Reply from 192.168.0.1: Destination host unreachable. Or
8. Request timed out.

ISP Connectivity Checkup

Issue a PING command to the IP address of your ISP's Gateway or DNS server. You may need to check the settings in Kx ADSL Router via the Windows GUI if this is dynamically set.

For Example:

```
C:\> PING 203.66.81.254
```

If successful, you can reach your ISP server.

If unsuccessful you may be having trouble connecting to your ISP, please verify that Kx ADSL Router is properly configured to connect to your ISP. Also verify that your Cable/DSL modem is functioning properly.

Internet Connectivity Checkup

PING to an IP address or domain name on Internet.

For Example:

```
C:\> PING 168.95.192.1  –w  5000
C:\> PING www.yahoo.com  –w  5000
```

If successful, you are connected to the Internet.

If you can ping the ISP's gateway, but cannot ping a specific site on the Internet, odds are your ISP has an internal problem. Call them for support.

APPENDIX A
Terminal Commands

Type ***?*** or ***help*** to list the main menu commands as below.

```
command>help
Dual Ethernet IP Share for Cable/xDSL Modem, version 3.20
   ======================================================
   Command                   Description
   ------------------------------------------------------
   help                  Show this message
   session               List active internet sessions
   show                  Display active configuration
   user                  List active local IP address leases
   filter                Set packet filters
   passwd                Change administrator's password
   ping <x.x.x.x>        Ping the specified host
   release               Abandon the dynamic Global port configuration
   renew                 Refresh the dynamic Global port configuration
   set                   Configure device in batch
   vserv                 Set internal virtual server mapping
   quit                  Exit to login prompt
   reboot                Restart device
   ======================================================
```

passwd

- No password is required when logging in for the first time.
- Press <Enter> to enter the start screen.
- Passwords can be up to six characters long.
- Passwords can contain letters, numbers, and spaces.
- Passwords are case sensitive.
- To set or change your password type up to six characters. You will be prompted to reenter your password to verify it before the new password is set. Return to the Start screen by typing quit.
- Test your new password to verify it has taken effect.

Example:

```
command>passwd
Please type old password :
type new password (0 to 6 characters) : ****
re-type new password (0 to 6 characters) : ****
```

show

Displays the current configuration. For first-time login, the current configuration is the factory default settings. Refer to section titled "**Factory Default Setting**" for detail.

Example:

```
command>show
Wan Mac Address : 00 E0 98 25 04 6A
IP address of local port : [192.168.1.254]
SubNetmask of local port : [255.255.255.0]
Distribute IP addresses to local computers : [Yes]
Continuous IP address pool starts at : [192.168.1.1]
  Number of IP address in pool : [128]
Enable PPPoE : [No]
Obtain global port configuration from ISP : [Yes]  .. under claiming
  IP address of global port : [0.0.0.0]
  SubNetmask of global port : [0.0.0.0]
Device name : [Untitled]
Domain name : [Domain]
Gateway : [0.0.0.0]
Primary DNS server : [0.0.0.0]
Secondary DNS server : [0.0.0.0]
```

set

The current settings appear by sequence. Press **Enter** to accept the default or current value in the bracket. Enter the appropriate value in the brackets to change it and then press **Enter**. Press <**Esc**> at any time to abort this command.

Example:

```
command>set
Press <ENTER> if you agree with the default value,
or <ESC> to escape.
IP address of local port [192.168.1.254] :
SubNetmask of local port [255.255.255.0] :
Distribute IP address to local computers ?(Yes/No) [Yes] :
  Continuous IP address pool start at [192.168.1.1] :
  Number of IP address in pool [128] :
Enable PPPoE ?(Yes/No) [No] :
```

```
Obtain global port configuration from ISP ?(Yes/No) [Yes] :
  IP address of global port [0.0.0.0] :
  SubNetmask of global port [0.0.0.0] :
Device name (0 to 20 characters) [Untitled] :
Domain name (0 to 36 characters) [Domain] :
Gateway [0.0.0.0] :
Primary DNS server [0.0.0.0] :
Secondary DNS server [0.0.0.0] :
New configuration will be:
IP address of local port : [192.168.1.254]
SubNetmask of local port : [255.255.255.0]
Distribute IP addresses to local computers : [Yes]
  Continuous IP address pool starts at : [192.168.1.1]
  Number of IP address in pool : [128]
Enable PPPoE : [No]
Obtain global port configuration from ISP : [Yes]
  IP address of global port : [0.0.0.0]
  SubNetmask of global port : [0.0.0.0]
Device name : [Untitled]
Domain name : [Domain]
Gateway : [0.0.0.0]
Primary DNS server : [0.0.0.0]
Secondary DNS server : [0.0.0.0]
Save and reboot ?(Yes/No) : [No]
```

vserv

Displays the internal virtual server mapping. You can set (including add, delete) the applications' names and the corresponding IP addresses of the local servers. "**Natural firewall**" allows requests for Internet access from the Local network, but no requests from the Internet to the Intranet are allowed. Computers from outside the Intranet are allowed to access specific ports by using the vserv command.

There are four operation choices for vserv command: Add, Del, Show, Quit.

Example:

```
command>vserv
Set local virtual server mapping (maximum 12),
or <ESC> to escape
Operations => 1) Show 2) Add 3) Del 0) Quit:2      ←Add a virtual server
Port number/application name: 80                   ← it's a Web server
Type => 1) tcp 2) udp: 1                           ← select TCP port
Server IP address: 192.168.0.254                   ← IP address of the local Web server
```

Port Numbers for some Internet applications:

Nameport	Number
ftp	21
telnet	23
pop3	110
smtp	25
dns	53
www	80
news	119
gopher	70

release

Gives up the obtained global port configuration. Executing this command disables the device, unless the user types the “renew” command as described below to retrieve configurations.

Example:

```
command>release

Give up the obtained global port configuration
```

Note: if you choose NOT to obtain the global port configuration from your ISP, this command won’t be executed and the following message will appear.

```
command>release

Works only if 'Obtain global port configuration from ISP' is enabled
```

renew

You must renew the global port configuration, after you have released it, to enable the device. The ‘Show’ command enables you to see the configuration. The device will not work until you have renewed the global port configuration.

Example:

```
command>renew

Update global port configuration
```

(You can type 'Show' command to view the new configuration)

Note: If you choose NOT to obtain the global port configuration from your ISP, this command won’t be executed and the following message will appear.

user

Displays the current active user(s), up to 128.

Example:

```
command>user


   IP address       Node address    Remainder time   Host name
   ---------------+--------------+--------------+---------
 192.168.10.1     0080-C8F8-8A64   5:47:17        Allen
 192.168.10.2     0080-C8F8-8A64   expired        Calvin
 192.168.10.3     0080-C8F8-8A64   0:12:25        Edward
 192.168.10.4     0080-C8F8-8A64   2:55:48        Victoria
 192.168.10.5     0080-C8F8-8A64   expired        SNL
 Total 5 user, 3 active lease.
 Elapsed  0:01:03
```

ping

Example:

```
command>ping 192.168.1.1
Reply OK.
command>ping 192.168.1.5
No response!
command>
```

session

List active Internet sessions through this device.

Example:

```
   command>session


              IP              Port   Port   IP              Port
   T/U Flag   client          client fake   remote          remote idle APType
   ---+-----+---------------+------+------+---------------+------+----+------
   tcp   37  192.168.10.27   1062   4133   210.66.41.132   110    0    GERNERAL
   tcp   7   192.168.10.31   1032   4136   211.75.84.154   80     0    GERNERAL
   tcp   7   192.168.10.31   1033   4138   211.75.84.154   80     0    GERNERAL
   tcp   7   192.168.10.32   1729   4139   140.113.39.195  110    0    GERNERAL
   tcp   7   192.168.10.27   1063   4140   210.66.41.132   110    0    GERNERAL
```

```
udp   1   192.168.10.31   1028   16385  168.95.192.1    53     20   GERNERAL
udp   1   192.168.10.32   1726   16386  168.95.1.1      53     5    GERNERAL
udp   1   192.168.10.32   1728   16387  168.95.192.1    53     5    GERNERAL
Active >> TCP:5,UDP:3  (Maximum >> TCP:128,UDP:64)
```

filter

There are three filter types supported. Each filter type can be set to **filter** or **forward (drop)**action**.** There are six sets of filter totally. The relationship among all filters is **"OR"** operation. That is as long as one of filter condition is satisfied, the specified action will be taken.

MAC address filter:

Example: Set MAC address filter to allow the computer equipped with network adapter address 0080C8123456 to access Internet.

```
command>filter
Set filter (maximum 6),
or <ESC> to escape
Operations => 1)Show 2)Add 3)Del 0)Quit 2     add a new filter
Filter Type => 1)MAC 2)LAN IP 3)WAN IP 4)TCP 5)UDP 1 for MAC address
Action => 1)Forward 2)Filter 2 drop on match
MAC Address(12 HEX-digit) : 0080c8123456 the MAC address to be examined


Show Setting:
Operations => 1)Show 2)Add 3)Del 0)Quit 1
Item   Type     Action      From               To
====   ======   =======   ================  ================
 1.     MAC     Filter     0080C8123456
```

IP address filter:

Example 1 : Set IP address filter to allow those local computers in range of 192.168.0.25 to 192.168.0.32. to access Internet.

```
Operations => 1)Show 2)Add 3)Del 0)Quit 2
Filter Type => 1)MAC 2)LAN IP 3)WAN IP 4)TCP 5)UDP 2 filter on IP address of local computers.
Action => 1)Forward 2)Filter 1 pass on match
IP Address (x.x.x.x): 192.168.0.25-192.168.0.32 IP address range
```

Example 2: Inhibit all local users from accessing the server on the Internet.

```
Operations => 1)Show 2)Add 3)Del 0)Quit 2
Filter Type => 1)MAC 2)LAN IP 3)WAN IP 4)TCP 5)UDP 3  filter on IP address of remote server
```

```
Action => 1)Forward 2)Filter 2  drop on match
IP Address (x.x.x.x): 203.66.99.100  remote IP address
```

Show Settings:

```
Operations => 1)Show 2)Add 3)Del 0)Quit 1
Item  Type   Action    From              To
==== ====== ======= ================ ================
LAN   IP     Forward   192.168.0.25      192.168.0.32
WAN   IP     Filter    203.66.99.100     203.66.99.100
```

Port Filter

Example 1: Allows to access the Web service only.

```
Operations => 1)Show 2)Add 3)Del 0)Quit 2
Filter Type => 1)MAC 2)LAN IP 3)WAN IP 4)TCP 5)UDP 4  filter on server service
Action => 1)Forward 2)Filter 1  allow to access
TCP port (xxx, or xxx-yyy): 80  Web service
```

Example 2: Inhibits all local computers from accessing these services.

```
Operations => 1)Show 2)Add 3)Del 0)Quit 2
Filter Type => 1)MAC 2)LAN IP 3)WAN IP 4)TCP 5)UDP 5
Action => 1)Forward 2)Filter 2
UDP port (xxx, or xxx-yyy):  20-25  services of FTP(20,21), TELNET(23), E-MAIL(25) are disabled.
```

APPENDIX B
Specification

Protocols	IP, NAT, ARP, ICMP, DHCP
Management/Setup	Locally via direct serial cable connection through Console port
Options	Locally via GUI for Windows 95/98/NT/2000/ME Remotely via Telnet
Local Port	RJ-45, 10/100 Dual Speed Ethernet
Global Port	RJ-45, 10Mb Ethernet to an external Cable/DSL Modem
Console Port	DB-9 female connector
LED Indicators	Power, LAN Link, LAN Speed 10/100, LAN Full/Half Duplex, WAN Link, Error
Input Power	5V DC @2.4A
Power Consumption	3.5 watt
Agency and Regulatory	FCC part 15 Class B, VCCI, CE
Physical Dimension	181 x 122 x41 mm^3 (L x W x H)
Weight	250g
Operating Temperature	0^{o}C to 50 ^{o}C
Operating Humidity	0-90% non-condensing

APPENDIX C
Supported Internet Applications

Application	Settings for Outgoing Connection	Setting for Incoming connection
ICQ98a, 99b	None	None
Netmeeting 2.1 & 3.0	None	1503 (tcp) 1720 (tcp)
AOE	2300-2400 (tcp) 2300-2400 (udp) 47624 (tcp)	2300-2400 (tcp) 2300-2400 (udp) 47624 (tcp)
VDO Live	None	None
mIRC	None	None
Cu-Seeme	7648 (tcp) 7648 (udp) 24032 (udp)	7648 (tcp) 7648 (udp) 24032 (udp)
PCAnyWhere	5632 (udp) 22 (udp) 5631 (tcp) 65301 (tcp)	5632 (udp) 22 (udp) 5631 (tcp) 65301 (tcp)